

KCX-228 (15031)

WHAT IS CLAIMED IS:

1. A method of forming an absorbent article containing an active chemical comprising the steps of:

5 providing an absorbent web containing fibers and an active chemical;

10 applying a formulation comprising an indicator system and a polymer mixture to said web, said indicator system comprising at least one dye component adapted to impart color to said web to which it is applied, said at least one dye component being capable of dissolving into a liquid when the web is contacted with a liquid, said at least one dye component dissolving at a faster rate than said active chemical when said web is contacted with a liquid, wherein the rate that said at least one dye component dissolves into said liquid is at least partially controllable by polymer mixture, said indicator system being
15 configured so that said color of said web becomes altered before said active chemical is completely exhausted during the use of said article.

2. A method as defined in claim 1, wherein said web has at least two outer surfaces, said formulation being applied to at least one surface of said web such that said web is capable of maintaining its
20 absorbent properties.

3. A method as defined in claim 2, wherein said formulation covers less than about 60% of said at least one surface of said web.

25 4. A method as defined in claim 1, wherein said indicator system comprises only one dye component.

5. A method as defined in claim 4, wherein said one dye component comprises a non-reactive dye.

30 6. A method as defined in claim 5, wherein said non-reactive dye comprises a foodstuff dye.

7. A method as defined in claim 5, wherein said non-

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reactive dye component comprises a nonionic dye.

8. A method as defined in claim 1, wherein said indicator system comprises at least two dye components.

5 9. A method as defined in claim 8, wherein one of said dye components is a non-reactive dye, and wherein another of said dye components is a reactive dye.

10. A method as defined in claim 9, wherein said reactive dye comprises a cationic dye.

10 11. A method as defined in claim 9, wherein said reactive dye comprises a sulfur dye.

12. A method as defined in claim 9, wherein said reactive dye comprises a pigment dye.

15 13. A method as defined in claim 1, wherein said polymer mixture comprises a polymer capable of swelling when contacted with water.

20 14. A method as defined in claim 13, wherein said water-swallowable polymer comprises a latex adhesive, said latex adhesive being capable of becoming cross-linked so that the degree of cross-linking can further facilitate control of the rate that said at least one dye component dissolves into said liquid when contacted therewith.

25 15. A method as defined in claim 1, wherein said polymer mixture comprises an additive selected from the group consisting of a cross-linking agent, a catalyst, a thickener, a plasticizer, a defoamer, composite particles, a viscosity modifier, a stabilizer, a surfactant, and combinations thereof.

16. A method as defined in claim 1, wherein said active chemical comprises an anti-microbial agent.

17. A method as defined in claim 16, wherein said anti-microbial agent comprises a stationary additive.

30 18. A method as defined in claim 16, wherein said anti-microbial agent comprises a surface migration additive.

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19. A method as defined in claim 1, wherein said web has at least two outer surfaces, said formulation being applied to said at least one of said two surfaces of said web in a preselected pattern.

20. A method as defined in claim 3, wherein said
5 formulation covers from about 10% to about 60% of said at least one surface of said web.

21. A method as defined in claim 3, wherein said formulation covers from about 10% to about 60% of both surfaces of said web.

10 22. A method as defined in claim 1, further comprising the step of curing said polymer mixture applied to said web.

23. A method as defined in claim 1, further comprising the step of creping said a surface of said web, said polymer mixture acting as an adhesive for adhering said web to a creping surface.

15 24. A wiper formed by the method defined in claim 16.

25. An absorbent article containing an active chemical comprising:

an absorbent web containing fibers, said absorbent web having at least two outer surfaces; and

20 an indicator system applied to said web, said indicator system comprising at least one dye component imparting a color to said at least one surface, said at least one dye component being capable of dissolving into a liquid when contacted therewith, said at least one dye component dissolving at a faster rate than said active chemical
25 when contacted with said liquid such that said color of said at least one surface becomes altered before said active chemical is completely exhausted during the use of said article; and

a water-swellaable polymer mixture applied to said web.

30 26. An article as defined in claim 25, wherein said web has at least two outer surfaces, said indicator system being applied to at least one of said two surfaces.

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27. An article as defined in claim 26, wherein said indicator system covers less than about 60% of said at least one surface of said web such that said web is capable of maintaining absorbent properties.

5 28. An article as defined in claim 25, wherein said indicator system comprises a non-reactive dye.

29. An article as defined in claim 25, wherein said indicator system comprises a reactive dye.

10 30. An article as defined in claim 25, wherein said polymer mixture comprises a polymer capable of swelling in water.

31. An article as defined in claim 25, wherein said polymer mixture comprises an additive selected from the group consisting of a cross-linking agent, a catalyst, a thickener, a plasticizer, a defoamer, composite particles, a viscosity modifier, a stabilizer, a surfactant, and combinations thereof.

32. An article as defined in claim 25, wherein said active chemical comprises an anti-microbial agent.

33. An article as defined in claim 32, wherein said anti-microbial agent comprises a stationary additive.

20 34. An article as defined in claim 32, wherein said anti-microbial agent comprises a surface migration additive.

35. A use-dependent indicator system for signaling the depletion of an active chemical being exhausted from an absorbent article comprising:

25 at least one dye component, said dye component being adapted to impart color to said article and being capable of dissolving into a liquid when contacted therewith and said dye component having a dissolution rate that is faster than the dissolution rate of said active chemical such that said article changes color before said
30 chemical is completely exhausted;

a polymer mixture, said polymer mixture comprising a water-

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